PITTSBURGH & CASTLE SHANNON RAILROAD,
OAK VIADUCT
(Pittsburgh & Castle Shannon Railroad, Bridge No. 1007
Overbrook Trolley Line,
Crossing Saw Mill Run Boulevard and Colerain Street
Pittsburgh
Allegheny County
Pennsylvania

HAER NO. PA-410-D

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

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HISTORIC AMERICAN ENGINEERING RECORD

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(Pittsburgh & Castle Shannon Railroad, Bridge No. 1007

HAER No. PA-410-D

Location: Overbrook Trolley Line, Crossing Saw Mill Run Boulevard and Colerain Street
Pittsburgh
Allegheny County, Pennsylvania

Quad: Pittsburgh East, Pennsylvania
UTM: 44.72000.585050

Date of Construction: 1928

Engineer: Pittsburgh Railways Company

Present Owner: Port Authority of Allegheny County
2235 Beaver Avenue
Pittsburgh, Pennsylvania 15233-1080

Present Use: Out of Service

Significance: The Oak Viaduct is one of four bridges which carried the Pittsburgh Railways' trolley cars along the 6 mile route from Mount Washington to Castle Shannon.

Project Information: The Port Authority's Stage II Light Rail Transit Project proposes the in-place modernization of the Overbrook, Library, and Drake Trolley Lines. The proposed project will include the removal and replacement of the Oak Viaduct.

Shelley Birdsong, Historian
Michael Baker Jr., Inc.
501 Parkway View Drive
Pittsburgh, Pennsylvania 15205

The Oak Viaduct crossing, located in the Overbrook section of Pittsburgh, first carried the Pittsburgh and Castle Shannon Railroad, and later the Overbrook Trolley Line, over Saw Mill Run, Saw Mill Run Boulevard, and Colerain Street. The Pittsburgh and Castle Shannon Railroad (P. & C.S.R.R.) built the original wooden trestle between 1872 and 1874, as the company extended its route from McKinley Park to Castle Shannon.[1] The current Oak Viaduct was built in 1928. The final bridge inspection report, completed in 1992, offers the most accurate information on the specifications of the bridge.

According to AWK Consulting Engineers, the present day Oak Viaduct is a single-track, rail bridge consisting of five short timber stringer spans with a maximum length of 12'-6," eight simply-supported steel stringer spans with a maximum length of 25', and one steel pony truss span with a length of 135' with an overall road clearance of 13'-10." The overall length of the bridge is 376 feet.[2] The spans are supported by ten braced timber bents, two reinforced concrete piers, one concrete encased stone pier, and two stub abutments. The steel pony truss is constructed of riveted members and joints, with no lateral bracing on the top chords of the two trusses. The bottom chords of the trusses have a lateral bracing system to carry lateral loads to the reinforced concrete piers at each end of the pony trusses. The trusses are 15 feet center to center and have eight panels, each 16'-9" in length. The floor system of the truss consists of 124' X 80' floor beams supporting two 120 X 65 stringers.[3]

Historically, the P. & C.S.R.R. constructed the Oak Viaduct to access the Fair Haven community (present-day Overbrook). At this location, the P. & C.S.R.R. owned one thousand acres which were subdivided and developed for their workers.[4] The wooden trestle changed little prior to 1928, even when the Pittsburgh Coal Company obtained a controlling interest in the P. & C.S.R.R. in 1900. The Pittsburgh Railways Company, a large consolidation interest which controlled or operated most of Pittsburgh's street railway lines in 1905, acquired a ninety-nine year lease of the P. & C.S.R.R. route. At that time, Pittsburgh Railways planned to incorporate the route into its Pittsburgh trolley network.

The first recorded change to the bridge occurred during 1909. Once operating the line, the Pittsburgh Railways Company decided to electrify and double-track the route and improve the infrastructure of the line for incorporation into the trolley network. Initially the company took measures to immediately widen and electrify the line. The first improvement was the laying of a third rail to accommodate Pennsylvania Broad Gauge trolley cars. Additionally, Construction Order 512 provided for the "[l]aying of electric railway tracks along the right of way of the

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[1]"Photograph of the Original Oak Viaduct," Carol Anthony Photograph Collection, Overbrook Community Center, Pittsburgh, Pennsylvania.
[2]AWK Consulting Engineers, "Periodic NBIS Bridge Inspection Report--Oak Viaduct," April 1992.
[3]AWK Engineers, "Bridge Inspection Report," April 1992.
[4]"Pittsburgh and Castle Shannon Railroad Company's Fair Haven Plan of Lots," *Pittsburgh Evening Chronicle*, 17 April 1872.

Pittsburgh and Castle Shannon Railroad from Castle Shannon to [a] point of connection with the Mount Wash. St. Ry. [for the] length of [the] route."[5] These changes resulted in the Oak Viaduct being retrofitted for trolley use, and did not represent the construction of a new structure. Therefore, the original structure stood from circa 1872 to 1928 when Pittsburgh Railways reconstructed the bridge. The total cost for retrofitting the six-mile route was $112,584.59 and occurred between April 30, 1909, and December 31, 1910.[6]

As with the other bridges of this route, Pittsburgh Railways' engineers prepared a cost estimate for double-tracking the Oak Viaduct as early as 1914. Engineers, estimating the use of 6.81 tons of tee rails, 176 tons of erected steel, 220 cubic yards of concrete, 705 cubic yards of fill, and removal of 286 feet of old structure to complete the project, predicted costs to total $30,717.82.[7] Nevertheless, the 1914 double-tracking did not occur for two reasons, the beginning of American involvement in World War I in 1917 and the beginning of a Pittsburgh Railways receivership in 1918.

The Pittsburgh Railways Company designed the current viaduct in 1928-1929 to permit the widening and construction of the current four-lane alignment of Saw Mill Run Boulevard, a project instigated by the City of Pittsburgh, Department of Public Works. Though the historic record is scant for this bridge, some information is available about the construction of the current viaduct. Cost estimates created in 1928 by Pittsburgh Railways Company required the removal of the portion of the bridge that crossed Saw Mill Run Boulevard. A 134-foot steel span pony truss was used as a replacement for the cost of $22,259.[8] To expedite the replacement, the Borough of Overbrook offered to pay $20,404 toward the cost for the new bridge.[9] The 1928 replacement is the current bridge over Saw Mill Run Boulevard.

This structure's importance is two-fold. The bridge was constructed to access a planned P. & C.S.R.R. workers community and thus reflects the active role played by transportation corridors in the settlement of Pittsburgh's South Hills region. The viaduct's other significance lies in Pittsburgh Railways reconstruction of the bridge. This is the only extant bridge along the route with a steel pony truss section. Also, the reconstruction of this portion of the bridge in 1928, signifies a change in the standards set for bridge construction along transportation corridors. In addition, the unique structural design of the "deep unbraced pony trusses are very unusual for a railway bridge."[10] In 1993, the Port Authority of Allegheny County removed the Oak Viaduct from service when

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[5]Pittsburgh Railways Company, Ledger of Construction Orders, Description of Construction Order Number 512, Miller Memorial Library, Pennsylvania Trolley Museum, Washington, Pennsylvania.
[6]*Ibid.*
[7]Pittsburgh Railways Company, "Estimate For Track Construction," 21 January 1914, Historic Bridge Files, 920.5 McKinley Park Bridge Files, Way and Structures Division, Port Authority of Allegheny County, Pittsburgh, PA.
[8]W.C. Boyd to O. Williams, letter dated 13 February 1928, Oak Viaduct Files.
[9]O. Williams to W.T. Rossell, letter dated 13 September 1928, Historic Bridge Files, 920.5 McKinley Park Bridge Folder, Way and Structures Division, Port Authority of Allegheny County, Pittsburgh, PA.
[10]Larry Lovejoy, personal communication, 14 March 1996.

extensive renovations were required to maintain its operational safety. These costly renovations served also as a catalyst to the 1993 retirement of the Overbrook Trolley Line. The crossing will evolve again to serve the Overbrook section of Pittsburgh when Oak Viaduct is removed and replaced under the Stage II Light Rail Transit System project.

Sources of Information

Primary Resources

Department of Public Works, City of Pittsburgh, "Photograph of the Original Oak Viaduct," circa 1928. Now located in the Carol Anthony Photographic Collection, Overbrook Community Center.

Lovejoy, Larry. Personal Communication dated 14 March 1996.

Pittsburgh Railways Company Papers--AIS 74:29. Located at the Hillman Library, Archives for Industrial Society, University of Pittsburgh, Pittsburgh, Pennsylvania.

Pittsburgh Railways Company Papers. Located at the Miller Memorial Library, Pennsylvania Trolley Museum, Washington, Pennsylvania.

Port Authority of Allegheny County Agreement Files 920.5 of the Overbrook, Drake, and Library Trolley Lines, Way and Structures Division, South Hills Junction Office, Pittsburgh, Pennsylvania.

Secondary Resources

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Newspapers

Anonymous. "Pittsburgh and Castle Shannon Railroad Company's Fair Haven Plan of Lots." *Pittsburgh Evening Chronicle*, 17 April 1872.

Maps

AWK Consulting Engineers. "Periodic NBIS Bridge Inspection Report--Oak Viaduct, Prepared for the Port Authority of Allegheny County." Pittsburgh, Pennsylvania, April 1992.

Hopkins, G.M. *Maps of Pittsburgh, Volume 6, Plate, 23.* Philadelphia, Pennsylvania: G.M. Hopkins, 1916. Corrected with revisions 1928.

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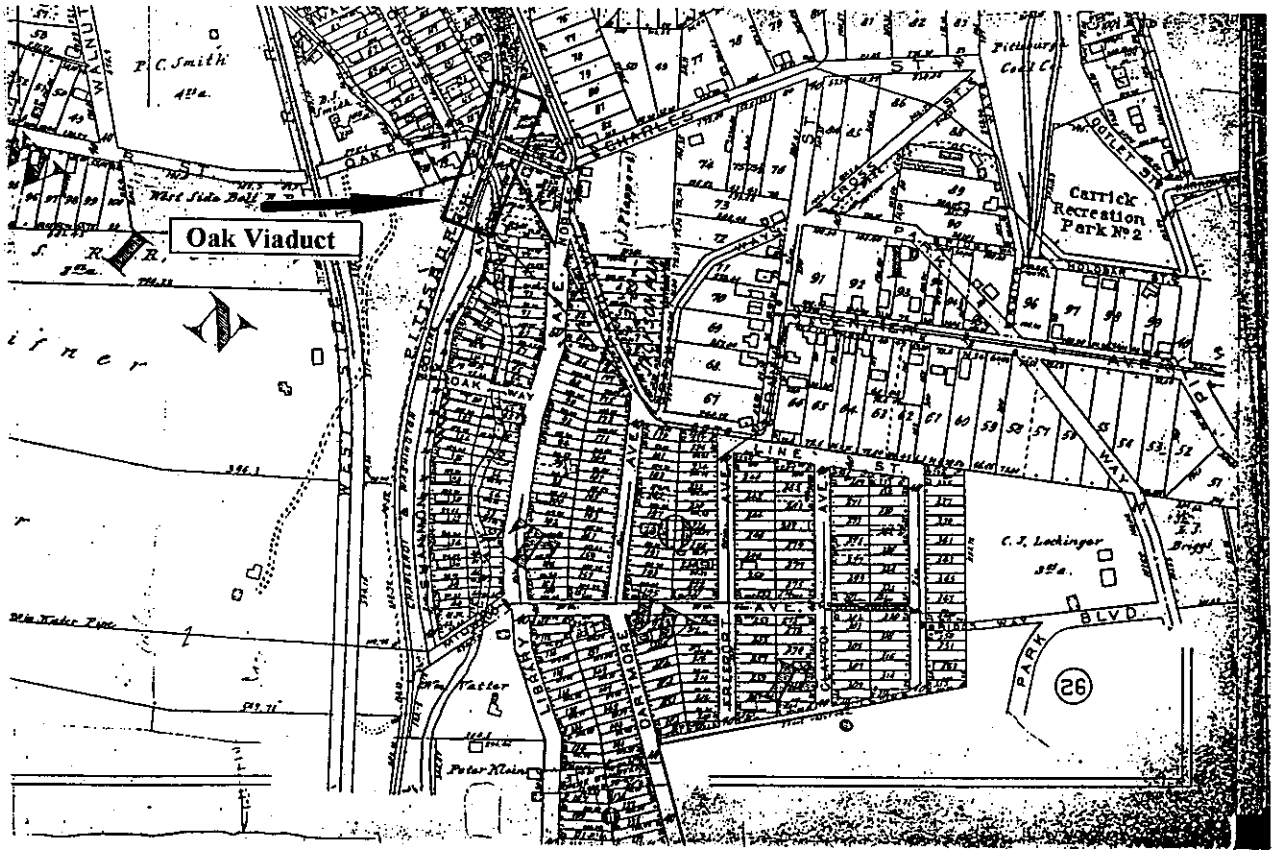
_____. "Maintenance Department Plans, Plate C." Pittsburgh, Pennsylvania, ND.



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Scale 1" = 513 feet
Illustrating the Oak Viaduct in its Setting
Original Scale 1" = 200 feet
1916
Griffith Morgan Hopkins, *Maps of Pittsburgh, Plate 23*
(Philadelphia, Pennsylvania: G.M. Hopkins Company, 1916)